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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,029	06/28/2005	Yuko Imanishi	2005_0922A	2304

52349 7590 10/09/2007  
WENDEROTH, LIND & PONACK L.L.P.  
2033 K. STREET, NW  
SUITE 800  
WASHINGTON, DC 20006

EXAMINER
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BLACK, LINH

ART UNIT	PAPER NUMBER
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2163

MAIL DATE	DELIVERY MODE
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10/09/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/541,029

Applicant(s)

IMANISHI ET AL.

Examiner

LINH BLACK

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2163

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 6/28/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

Claims 1-14 are pending in the application. Claims 1, 11 and 13 are independent claims.

### ***Specification***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Rautenbach et al. (2002/0165848).

As per claims 1, 11, and 13, Rautenbach et al. teach

a selection unit operable to select the threads one at a time; execute examination processing with respect to the selected thread – pars. 0811-0812, 0814.

the examination processing including procedures of stopping execution of the thread – pars. 0568, 0570, 0585, 0761.

finding an object that is accessible from the thread by referring to an object pointer – pars. 0457, 0538, 0561-0562, 0630.

managing the found object as a non-freeing target; resuming execution of the thread – pars. 0563, 0635.

a detection unit operable to, when having detected, after the selection unit has commenced selecting, that an object pointer has been processed as a processing target by a currently-executed thread, manage an object indicated by the processing target object pointer, as a non-freeing target – pars. 0833-0836, 0853, 0872-0875, 0900.

a freeing unit operable to, after the examination processing has been completed with respect to all of the threads, free memory areas that correspond to objects other than the objects that are managed as non-freeing targets – pars. 0838 (white is made available for future use), 0846, 0897.

As per claim 2, Rautenbach et al. teach

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wherein the detection unit performs the detection only when the currently-executed thread has not yet been subject to examination processing – pars. 0563, 0609, 0814.

the detection unit includes: a finding sub-unit operable to, when having performed the detection, store, to a working memory area that corresponds to the currently-executed thread, the processing target object pointer and an object pointer in an object that can be reached from the processing target object pointer – pars. 0352, 0562, 0630-0631.

a management sub-unit operable to, while execution of a thread is being stopped by the examination unit, manage, as a non-freeing target, an object that can be reached from the object pointer in the working memory area corresponding to the thread – pars. 0836, 0866.

As per claim 3, Rautenbach et al. teach

when an object indicated by an object pointer in a stack corresponding to the selected thread is found to be accessible, repeatedly performing a procedure of, only when both (a) the accessible object is not already being managed as a non-freeing target and (b) an object pointer exists in the

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accessible object, further finding that an object indicated by the object pointer in the accessible object is accessible – pars. 0814, 0838.

the selection unit, after a first selection, further performs selection if, after the examination processing has been performed by the examination unit, any threads out of the plurality of threads remain that have not been subject to the examination processing – pars. 0607-0609, 0811.

the selection unit refers to information about the threads, and makes the selection based one or more predetermined thread selection conditions – pars. 0572, 0811-0812, 0814, 0897.

As per claim 4, Rautenbach et al. teach

a condition indicating that any threads whose thread state is a wait state are to be selected before any threads whose thread state is a state other than the wait state; if a thread whose thread state is the wait state exists when making the selection, the selection unit selects the thread whose state is the wait state – 0166 (updating states of mem locations and register states), 0871-0872 (tracing objects' states), 0976 (wait state), 0979, 0983, 0988-0999.

As per claims 5 and 9, Rautenbach et al. teach

a condition indicating that any threads whose thread priority level is low are to be selected before any threads whose thread priority level is high – pars. 0968, 0116 (non-interrupt level threads are threads with high priority level, thus, the interrupt-level threads have low priority are to be selected before any threads whose thread priority level is high), 1071 (multi-threaded environment and priority).

As per claims 6 and 8, Rautenbach et al. teach

a condition indicating that any threads whose corresponding stack size is small are to be selected before any threads whose corresponding stack size is large – pars. 0559 (thread's stack is being inspected by a concurrent garbage collector), 0962, 1068.

As per claims 7, 10, 12, and 14, Rautenbach et al. teach



a memory management mechanism that manages memory with use of a memory management unit (MMU), wherein each time an object is to be generated, a memory area corresponding to the object is allocated by the memory management mechanism, and the freeing unit frees the memory are as via the memory management mechanism – pars. 0558, 0830-0835.

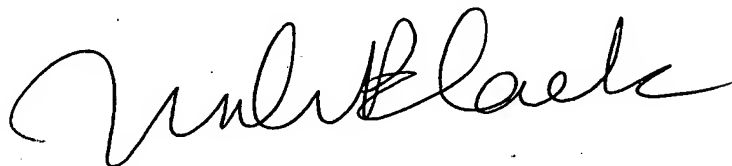
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINH BLACK whose telephone number is 571-272-4106. The examiner can normally be reached on Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



LINH BLACK  
Examiner  
Art Unit 2163

September 27, 2007